

# APPENDIX I

## DEFINITIONS

**BEST TRACK** - A subjectively smoothed path, versus a precise and very erratic fix-to-fix path, used to represent tropical cyclone movement.

**CENTER** - The vertical axis or cone of a tropical cyclone. Usually determined by wind, temperature, and/or pressure distribution.

**CYCLONE** - A closed atmospheric circulation rotating about an area of low pressure (counterclockwise in the northern hemisphere).

**EPOCHERIS** - Position of a body (satellite) in space as a function of time; used for gridding satellite imagery. Since epocheris gridding is based solely on the predicted position of the satellite, it is susceptible to errors from vehicle wobble, orbital eccentricity and the oblateness of the earth.

**EXPLOSIVE DEEPENING** - A decrease in the minimum sea-level pressure of a tropical cyclone of 2.5 mb/hr for 12 hours or 5.0 mb/hr for six hours (Holliday and Thompson, 1979).

**EXTRATROPICAL** - A term used in warnings and tropical summaries to indicate that a cyclone has lost its "tropical" characteristics. The term implies both poleward displacement from the tropics and the conversion of the cyclone's primary energy sources from release of latent heat of condensation to baroclinic processes. The term carries no implications as to strength, size or intensity.

**EYE** - A term used to describe the central area of a tropical cyclone when it is more than half surrounded by wall cloud.

**FUJIWHARA EFFECT** - An interaction in which tropical cyclones within 700 nm (1296 km) of each other begin to rotate about one another. When intense tropical cyclones are within about 400 nm (741 km) of each other, they may also begin to be drawn closer to each other (Brand, 1970) (Dong and Neumann, 1983).

**INTENSITY** - The maximum wind speed, typically within one degree of the center of the tropical cyclone.

**MAXIMUM SUSTAINED WIND** - Highest surface wind speed averaged over a one-minute period of time. Peak gusts over water average 20 to 25 percent higher than sustained winds.

**RAPID DEEPENING** - A decrease in the minimum sea-level pressure of a tropical cyclone of 1.25 mb/hr for 24 hours (Holliday and Thompson, 1979).

**RECURVATURE** - The turning of a tropical cyclone from an initial path toward the west or northwest to a path toward the northeast.

**SIGNIFICANT TROPICAL CYCLONE** - A tropical cyclone becomes "significant" with the issuance of the first numbered warning by the responsible warning agency.

**SIZE** - The areal extent of the tropical cyclone measured radially outward from the center (e.g., radius of the outer closed isobar).

**STRENGTH** - The average wind speed of the inner low-level circulation, usually measured within one to three degrees of the center of the tropical cyclone.

**SUPER TYPHOON (HURRICANE)** - A typhoon or hurricane in which the maximum sustained surface wind (one-minute mean) is 130 kt (67 m/sec) or greater.

**TROPICAL CYCLONE** - A non-frontal, migratory low-pressure system of usually synoptic scale developing over tropical or subtropical waters and having a definite organized circulation.

**TROPICAL DEPRESSION** - A tropical cyclone in which the maximum sustained surface wind (one-minute mean) is 33 kt (17 m/sec) or less.

**TROPICAL DISTURBANCE** - A discrete system of apparently organized convection - generally 100 to 300 nm (185 to 556 km) in diameter - originating in the tropics or subtropics, having a non-frontal migratory character and having maintained its identity for 12- to 24-hours. It may or may not be associated with a detectable perturbation of the wind field. As such, it is the basic generic designation which, in successive stages of identification, may be classified as a tropical depression, tropical storm or typhoon (hurricane).

**TROPICAL STORM** - A tropical cyclone with maximum sustained surface winds (one-minute mean) in the range of 34 to 63 kt (17 to 32 m/sec) inclusive.

**TROPICAL UPPER-TROPOSPHERIC TROUGH (TUTT)** - A dominant climatological system (upper-level trough) and a daily synoptic feature, of the summer season, over the tropical North Atlantic, North Pacific and South Pacific Oceans (Sadler, 1979).

**TYPHOON / HURRICANE** - A tropical cyclone in which the maximum sustained surface wind (one-minute mean) is 64 kt (33 m/sec) or greater. West of 180 longitude degrees they are called typhoons and east of 180 degrees longitude they are called hurricanes. Foreign governments use these and other terms for tropical cyclones and may apply different intensity criteria.

**WALL CLOUD** - An organized band of cumuliform clouds immediately surrounding the central area of a tropical cyclone. The wall cloud may entirely enclose or partially surround the center.

## APPENDIX II

### NAMES FOR TROPICAL CYCLONES

Column 1	Column 2	Column 3	Column 4
ANDY	ABBY	ALEX	AGNES
BRENDA	BEN	BETTY	BILL
CECIL	CARMEN	CARY	CLARA
DOT	DOM	DINAH	DOYLE
ELLIS	ELLEN	ED	ELSIE
FAYE	FORREST	FREDA	FABIAN
GORDON	GEORGIA	GERALD	GAY
HOPE	HERBERT	HOLLY	HAL
IRVING	IDA	IAN	IRMA
JUDY	JOE	JUNE	JEFF
KEN	KIM	KELLY	KIT
LOLA	LEX	LYNN	LEE
MAC	MARGE	MAURY	MAMIE
NANCY	NORRIS	NINA	NELSON
OWEN	ORCHID	OGDEN	ODESSA
PEGGY	PERCY	PHYLLIS	PAT
ROGER	RUTH	ROY	RUBY
SARAH	SPERRY	SUSAN	SKIP
TIP	THELMA	THAD	TESS
VERA	VERNON	VANESSA	VAL
WAYNE	WYNNE	WARREN	WINONA

**NOTE:**

Names are assigned in rotation, alphabetically. When the last name (WINONA) has been used, the sequence will begin again with "ANDY".

SOURCE: CINCPACINST 3140.1 (series)

## APPENDIX III

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**APPENDIX IV**  
**PAST ANNUAL TROPICAL CYCLONE REPORTS**

Copies of the past  
Annual Tropical Cyclone  
Reports  
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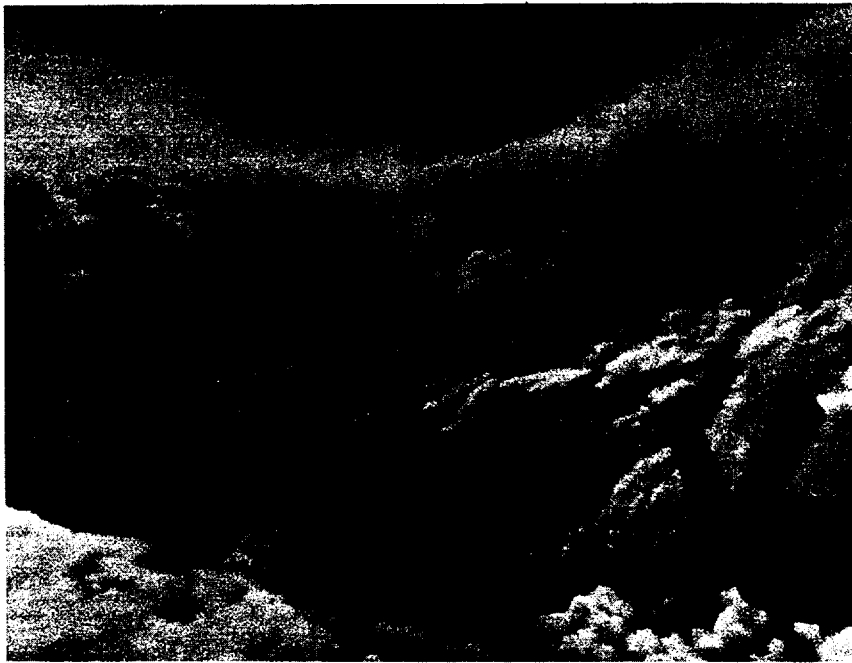
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**BLOCK 18 (CONTINUED)**  
**TROPICAL CYCLONE BEST TRACK DATA**  
**TROPICAL CYCLONE FORECASTING**  
**AIRCRAFT RECONNAISSANCE**  
**DYNAMIC TROPICAL CYCLONE MODELS**  
**TYPHOON ANALOG MODEL**  
**TROPICAL CYCLONE STEERING MODEL**  
**CLIMATOLOGY/PERSISTENCE TECHNIQUES**  
**TROPICAL CYCLONE FIX DATA**

The Black Swan insignia of the 54 WRS Typhoon Chasers is included in dedication to the squadron's forty-three year's of support to the tropical cyclone forecast and warning mission. The nature and extent of their involvement with the USPACOM tropical cyclone warning system is best described by their last Commander, Lt. Col. Don H. Owen, during his 1987 Tropical Cyclone Conference briefing, "As we deactivate on 1 October, we will not be flying with you, literally, but our hearts and wishes for successful typhoon forecasting remain with you in the future."



Looking across the starboard wing and outboard engine of the 54th Weather Reconnaissance Squadron (54 WRS) WC-130 aircraft, the camera captures a section of the spectacular inner wall of Typhoon Wynne's (07W) eye. The tight curvature of the eye wall cloud shows across the top of the image. (The pentagons near the center of the photograph are due to sunlight glare off the lens diaphragm of the camera.) At the time the picture was taken, 260010Z July 1987, the aircraft reconnaissance mission (AF8610507 WYNNE) was fixing the eye over the Philippine Sea, 250 nm (463 km) north of Guam and 48 nm (89 km) west of the island of Pagan in the northern Marianas. The circular eye diameter was 16 nm (30 km) and the minimum sea-level pressure at that time was 922 mb (Photo courtesy of Detachment 3, 1st Weather Wing and Kenneth W. Reese, Captain, USAF).





*The Air Force Air Weather Service celebrated its 50th anniversary on 1 July 1987. The insignia that was designed for the occasion is displayed here in recognition of Detachment 1, 1st Weather Wing's enormous contribution to the NAVOCEANCOMCEN/JTWC tropical cyclone forecast and warning support to the U. S. Pacific Command. Twenty-eight years of cooperation between Navy and Air Force personnel working at NAVOCEANCOMCEN/JTWC have resulted in one of the finest tropical cyclone forecasting centers in the world.*